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STONES SAWING SLUDGE AS BY-PRODUCT: characterization for a future recovery

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The European Commission, as part of its Thematic Strategy on the prevention and recycling of waste, committed itself to tackle one of the issues around the waste definition, namely the distinction between waste and by-products. This definition has been outlined through the Communication on waste and by-product of the European Court of Justice (Brussels, 21.2.2007 COM(2007) 59 final COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT). By-product is a substance or object, resulting from a production process, the primary aim of which is not the production of that item. By-products can come from a wide range of business sectors, and can have very different environmental impacts. If there is a possibility that the material is in fact not useable, because it does not meet the technical specifications that would be required for its use, then it should continue to be considered as a waste. The status of waste protects the environment from the potential consequences of this uncertainty. If it subsequently happens that a use is found for the waste in question then it will lose its status of waste and it will be considered a by-product. An incorrect classification could be the cause of environmental damage or unnecessary costs for business.
For this purpose a characterization of sludge coming from different plants of stone processing was carried out for a better classification of the materials in view of a future recovery.
The different stones cutting processes considered for this study are: gangsaw, diamond blade and diamond wire. The cut materials are granites, gneisses, and other stones mainly of silicatic nature. The tests performed on the sawing sludge are the following: particle size analysis, chemical analysis, wet magnetic separation, diffraction and SEM analysis. The study performed is useful for evaluating the possible reuses of the products coming from the magnetic separation: the metal fraction, and the mineral one.
In order to avoid a subsequent environmental degradation and to promote a technology innovation (sustainability and circular economy) a proactive waste management strategy trying to optimize on the one hand the processing to obtain reduced waste and the other to improve the process to obtain two reusable by-products was considered.